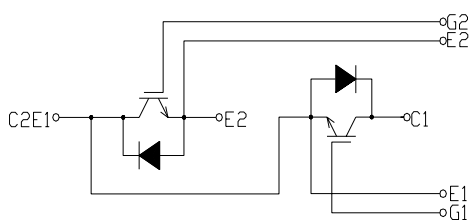


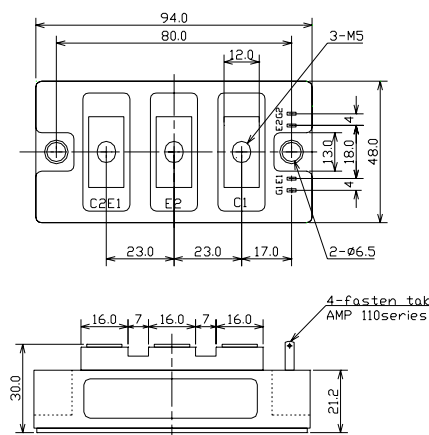
# IGBT MODULE Dual 150A 1200V

## PDMB150B12C2

### CIRCUIT



### OUTLINE DRAWING



4-fasten- tab No 110

Dimension(mm)

Approximate Weight : 320g

### MAXMUM RATINGS (Tc=25°C)

| Item                                            | Symbol                    | PDMB150B12C2 | Unit |
|-------------------------------------------------|---------------------------|--------------|------|
| Collector-Emitter Voltage                       | $V_{CES}$                 | 1200         | V    |
| Gate - Emitter Voltage                          | $V_{GES}$                 | +/- 20       | V    |
| Collector Current                               | DC                        | 150          | A    |
|                                                 | 1 ms                      | 300          |      |
| Collector Power Dissipation                     | $P_C$                     | 730          | W    |
| Junction Temperature Range                      | $T_j$                     | -40 to +150  | °C   |
| Storage Temperature Range                       | $T_{stg}$                 | -40 to +125  | °C   |
| Isolation Voltage (Terminal to Base AC, 1 min.) | $V_{ISO}$                 | 2500         | V    |
| Mounting Torque                                 | Module Base to Heat sink  | 2.04         | N•m  |
|                                                 | Bus Bar to Main Terminals |              |      |

### ELECTRICAL CHARACTERISTICS (Tc=25°C)

| Characteristic                       | Symbol        | Test Condition                                                                  | Min. | Typ.   | Max. | Unit |
|--------------------------------------|---------------|---------------------------------------------------------------------------------|------|--------|------|------|
| Collector-Emitter Cut-Off Current    | $I_{CES}$     | $V_{CE}=1200V, V_{GE}=0V$                                                       | -    | -      | 3.0  | mA   |
| Gate-Emitter Leakage Current         | $I_{GES}$     | $V_{GE}=+/- 20V, V_{CE}=0V$                                                     | -    | -      | 1.0  | μA   |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=150A, V_{GE}=15V$                                                          | -    | 1.9    | 2.4  | V    |
| Gate-Emitter Threshold Voltage       | $V_{GE(th)}$  | $V_{CE}=5V, I_C=150mA$                                                          | 4.0  | -      | 8.0  | V    |
| Input Capacitance                    | $C_{ies}$     | $V_{CE}=10V, V_{GE}=0V, f=1MHz$                                                 | -    | 12,600 | -    | pF   |
| Switching Time                       | Rise Time     | $V_{CC}=600V$<br>$R_L=4\text{ ohm}$<br>$R_G=3.6\text{ ohm}$<br>$V_{GE}=+/- 15V$ | -    | 0.25   | 0.45 | μs   |
|                                      | Turn-on Time  |                                                                                 | -    | 0.40   | 0.7  |      |
|                                      | Fall Time     |                                                                                 | -    | 0.25   | 0.35 |      |
|                                      | Turn-off Time |                                                                                 | -    | 0.80   | 1.10 |      |

### FREE WHEELING DIODES RATINGS & CHARACTERISTICS (Tc=25°C)

| Item            | Symbol | Rated Value | Unit |
|-----------------|--------|-------------|------|
| Forward Current | DC     | 150         | A    |
|                 | 1 ms   | 300         |      |

| Characteristic        | Symbol   | Test Condition                            | Min. | Typ. | Max. | Unit |
|-----------------------|----------|-------------------------------------------|------|------|------|------|
| Peak Forward Voltage  | $V_F$    | $I_F=150A, V_{GE}=0V$                     | -    | 1.9  | 2.4  | V    |
| Reverse Recovery Time | $t_{rr}$ | $I_F=150A, V_{GE}=-10V, di/dt=300A/\mu s$ | -    | 0.2  | 0.3  | μs   |

### THERMAL CHARACTERISTICS

| Characteristic    | Symbol | Test Condition   | Min. | Typ. | Max. | Unit |
|-------------------|--------|------------------|------|------|------|------|
| Thermal Impedance | IGBT   | Junction to Case | -    | -    | 0.16 | °C/W |
|                   | DIODE  |                  | -    | -    | 0.32 |      |

Fig.1- Output Characteristics (Typical)

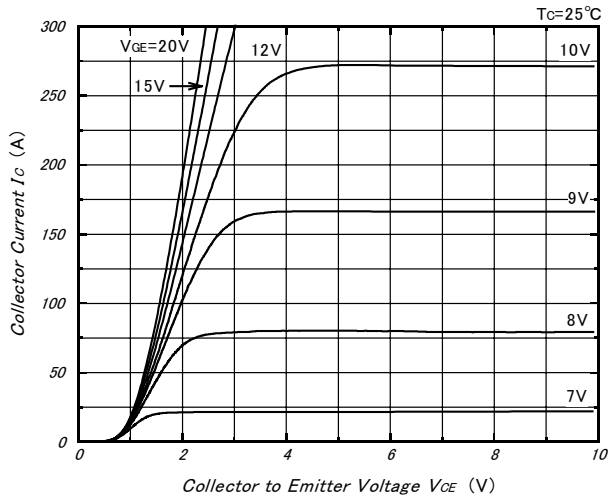


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

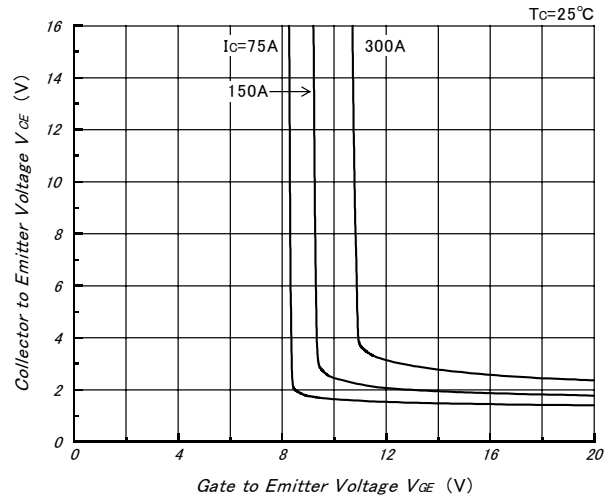


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

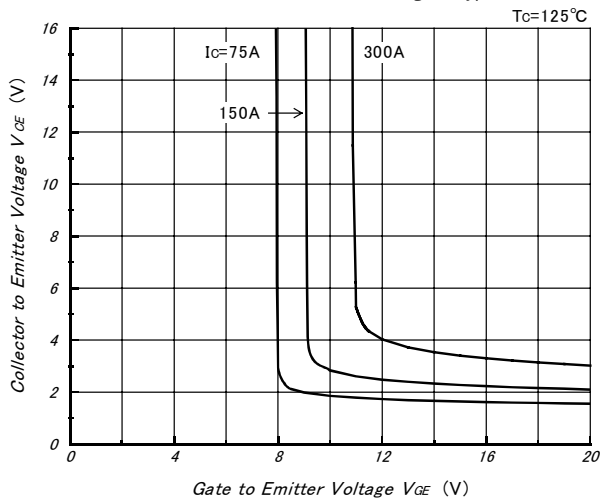


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

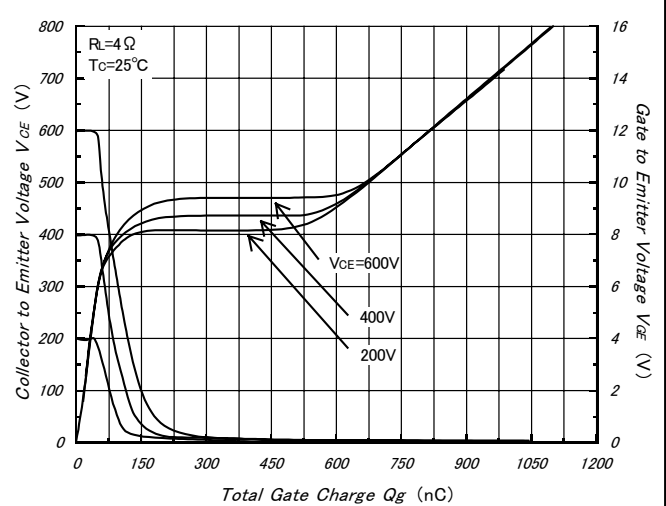


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

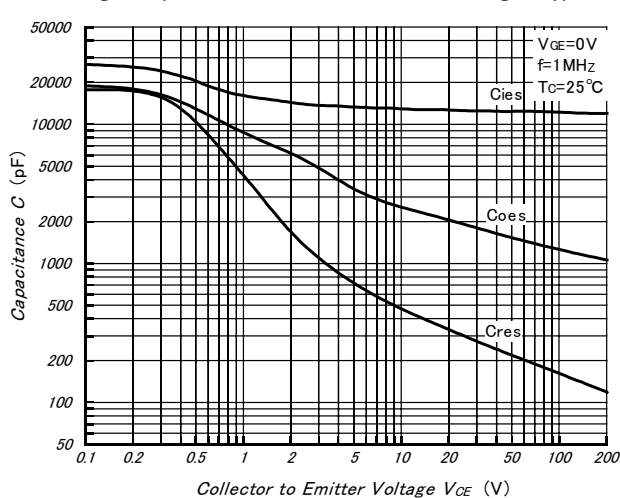


Fig.6- Collector Current vs. Switching Time (Typical)

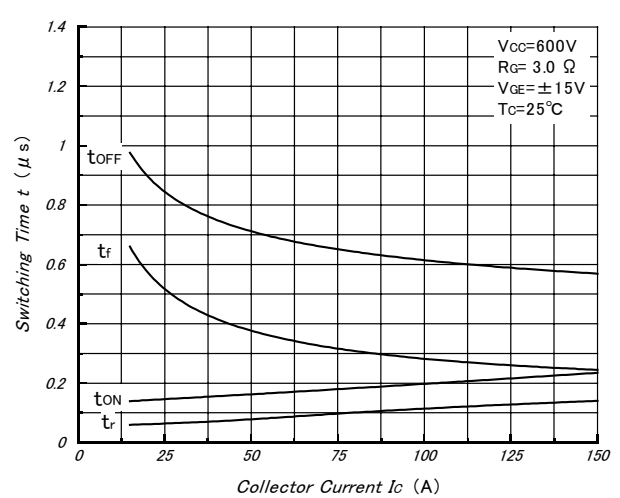


Fig.7- Series Gate Impedance vs. Switching Time (Typical)

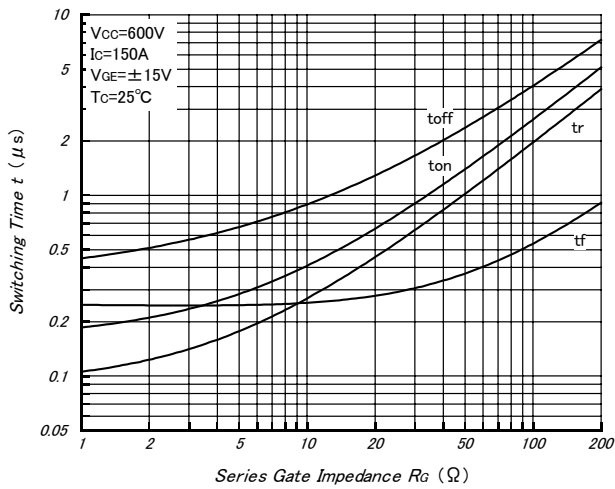


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

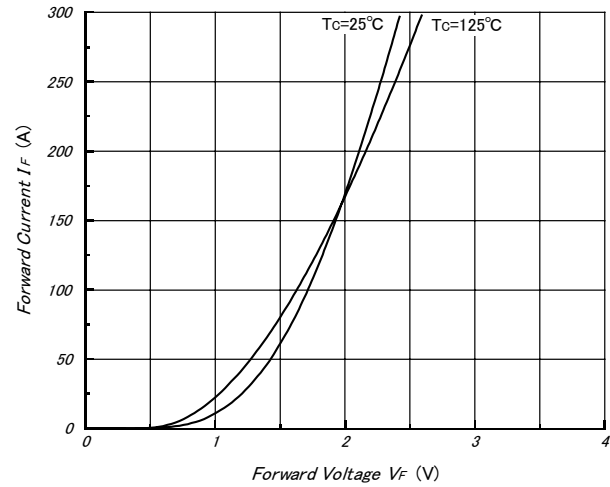


Fig.9- Reverse Recovery Characteristics (Typical)

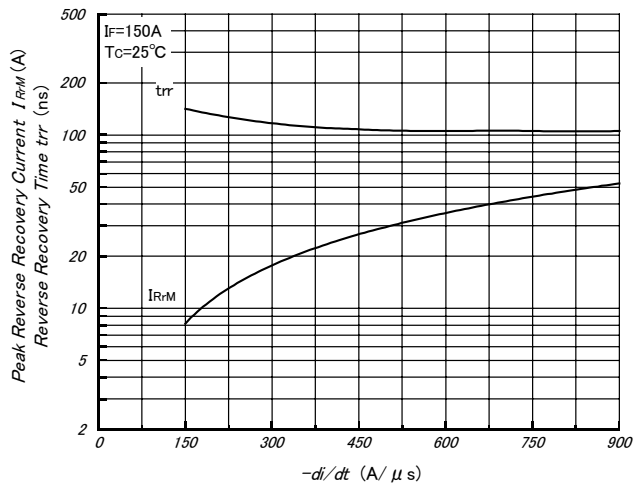


Fig.10- Reverse Bias Safe Operating Area

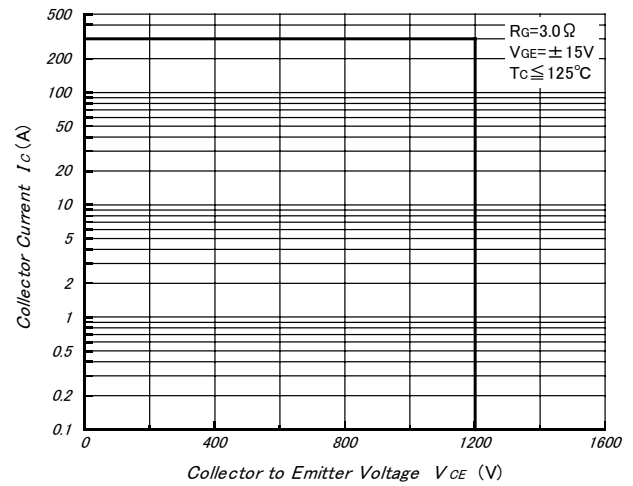


Fig.11- Transient Thermal Impedance

